

Automation and Mechanization of (Cont.)

761

3. Brief description of multiproduct production lines in small-lot instrument production	381
4. Trends in mechanization of multiproduct production lines	386
5. Construction of multiproduct production lines	389
Ch. XVI. Means for the Mechanization of Assembling Operations (Grigor'yev, B. V., Candidate of Technical Sciences)	397
1. Welding of parts	397
2. Soldering of parts	404
Ch. XVII. Unified Coil-winding Machines for Winding of Coils, Potentiometers and Rotors (Buyanov, I. A., Engineer)	412
1. Machine for winding on straight-line frames (series winding)	413
2. Machine for winding on arched and annular frames (toroids)	414
3. Slot-winding machines	416
4. Multispindle automatic [winding] machines	418
5. Description of standardized assemblies	419
Ch. XVIII. Equipment for Overall Mechanization of Manufacturing Processes Involving Rotor and Stators for Small-sized Electric Motors (Mironov, N. V., Engineer)	426

Card 10/15

Automation and Mechanization of (Cont.)

761

- | | |
|--|-----|
| 1. Burr-removing machine SSZ-1 | 426 |
| 2. Apparatus for mechanical varnishing of laminated strips
in magnetic circuits | 429 |
| 3. Machine for stacking slot insulation | 430 |
| 4. Slot-winding machines | 432 |

Ch. XIX. Overall Mechanization of Wiring Operations During the
Assembly of Electric Instruments and Units
(Monakhov, A. V., Engineer)

- | | |
|---|-----|
| 1. Clamping of circuit wires on a former | 437 |
| 2. Mechanization of insulation stripping from wire ends
and twisting of wire strands | 437 |
| 3. Machines for cutting and cleaning wire ends | 438 |
| 4. Marking of wires | 441 |
| 5. Use of welding in place of soldering | 444 |

Ch. XX. Mechanization of Dynamic Balancing of Instrument and
Power-unit Rotors (Borisevich, V. N., Engineer and
Avrutskiy, G. I., Engineer)

447

Card 11/15

Automation and Mechanization of (Cont.)

761

- | | |
|--|-----|
| 1. Nature and significance of rotor balancing; | 447 |
| 2. Analysis of existing methods and means used in dynamic balancing | 449 |
| 3. Equipment requirements for overall automation of the dynamic balancing process and basic trends in the solution of this problem | 461 |

PART IV. MECHANIZATION AND AUTOMATION OF INSPECTION PROCESSES

- | | |
|---|-----|
| Ch. XXI. Automation and Mechanization of Technical Inspection Under Instrument-manufacturing Conditions (D'yachenko, I. Ye., Doctor of Technical Sciences, Professor and Vikhman, V. S., Candidate of Technical Sciences) | 467 |
| 1. Basic data for the selection of preventive control methods | 468 |
| 2. Automatic inspection devices | 470 |
| 3. Inspection with the aid of radioactive isotopes | 478 |
| Ch. XXII. Means for Automatic Inspection of Parts (Kiselev, V.M., Candidate of Technical Sciences and Polyakov, Z. S., Engineer) | 481 |
| 1. Electric means for automatic inspection | 481 |

Card 12/15

Automation and Mechanization of (Cont.)

761

2. Pneumatic means for automatic inspection	491
Ch. XXIII. Automating Inspection of Small-module Gears (Kozlov, M. P., Engineer)	506
1. Objectives of automating gear-inspection processes	506
2. Feasibility of automating overall double-profile inspection	507
3. Feasibility of automating single-profile inspection	511
Ch. XXIV. Automating Inspection of Thread-cutting in Instrument Manufacturing (Gavrilov, A. N., Doctor of Technical Sciences, Professor and Khokhlov, B. A., Candidate of Technical Sciences)	518
1. Objective and significance of automating and mechanizing the inspection of thread-cutting operations	518
2. Instruments and devices mechanizing the control of thread-cutting process	520
3. Automatic machines for inspecting and sorting of threaded parts.	
4. Automatic inspection machines for checking thread-cutting in process	530
	533

Card 13/15

Automation and Mechanization of (Cont.)

761

Ch. XXV. Automating Inspection of Knife-edges (Felikson, Ye. I.,
Candidate of Technical Sciences)

- | | |
|---|-----|
| 1. Instruments for inspecting the angle of paper | 536 |
| 2. Instrument for inspecting prism's working edge | 537 |
| 3. Instrument for inspecting the cut face of the cone | 544 |
| prism | 549 |

Ch. XXVI. Automating Inspection of Parts of a Magnetic circuit
Relay (Zhigalov, A. A., Engineer)

- | | |
|---|-----|
| 1. Methods of measuring magnetic characteristics and inspection of
magnetic properties of relay parts. | 554 |
| 2. Basic data on setting up a semiautomatic device. | 557 |
| 3. Principle of operation of the semiautomatic device | 559 |
| 4. Description of the system and operations of the semiautomatic
device | 561 |
| 5. Rating data and validating elements of the semiautomatic-
device system | 567 |
| 6. Design description and equipment composition of the semi-
automatic device | 569 |
| 7. Economic effect resulting from the use of the semiautomatic
device | 570 |

Card 14/15

Automation and Mechanization of (Cont.)

761

8. Prospects for refining the semiautomatic device and its use for other purposes

571

Ch. XXVII. Mechanization and Automation of Inspection Processes and Accounting of Parts in the Watch-making Industry (Sarkin, V. I., Candidate of Technical Sciences and Vorntsov, L. N. Candidate of Technical Sciences)

572

1. Universal dimension-control means and examples of their mechanization and automation
2. Mechanizing the inspection of surface finish
3. Mechanized and automatic devices for inspecting watch parts
4. Counters for watch parts
5. Activating devices

572

576

576

586

589

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JG/gmp
1-16-59

VULFSON, I. A.

25(1) PHASE I BOOK EXPLOITATION SOV/2383

Abdelsya nauk SSSR. Konissiya po tekhnologii mashinostroyeniya
Automatizatsiya mashinostroyeniya (Automation of Machine-Build-
ing Processes. Vol. 1: Drives and Control Systems for Process
Machinery) Moscow, Izd-vo AN SSSR, 1959. 370 p. Errata slip
inserted. 5,000 copies printed.

Ed.: V.I. Dikushin, Academician; Ed. of Publishing House: D.M.
Ioffe; Tech. Ed.: I.P. Kur'sin.

PURPOSE: This book is intended for engineers dealing with auto-
mation of various machine-building processes.

COVERAGE: This is the second volume of transactions of the second
Conference on Overall Mechanization and Automation of Machine-Build-
ing Processes held September 25-29, 1956. The present volume
consists of three parts, the first dealing with automatic control of
machine tools, the second with automatic control of machine tool
automatic control of dimensions of machined parts, inspection
methods for automatic production lines, in-process inspection
devices, application of electronics in automating linear
measuring processes, and machines for automatic inspection of
bearing races. The second part deals with including appli-
cation of digital computers in the control of metal-cutting
machine tools, reliability of the control system, application of
gas-tube frequency converters and their use in automatic
systems, hydraulic drives and ultrasonic vibrators. Part
three deals with the mechanisms of automatic machines and auto-
matic production lines. The subjects discussed include
image, tracking, and Geneva-wheel-type mechanisms, friction
drives, automatic loading devices, diaphragm-type pneumatic
drives, various auxiliary devices for automatic production
lines, and methods of design and accuracy of data. No person-
alities are mentioned. There are no references.

Concise title: I. A. Vulfson. Automatic Control of Dimensions
in Machine Building

Altshuler, A.B. Determining Optimum Conditions for Controlling
the Mean Diameter of Machined Parts

For Automatic Production Lines

Drortshly, Ye. R. Standard Devices for Active Control

Measuring Methods

Elusor, I.A. Metrological and Statistical Checking of Some
Automatic Inspection and Sorting Systems

Inspection Methods

Inspection Methods

Inspection Methods

Inspection Methods

Inspection Methods

Inspection Methods

Inspection Methods

Inspection Methods

Inspection Methods

Inspection Methods

VUL'FSON, I. A. Cand. Tech. Sci. (diss) "Linear Interpolator
as Kinematic Connections in Metal-cutting Tools," Moscow, 1961,
17 pp (Inst. of Machine Operation) 200 copies (KL Supp 12-61,
264).

Vul'fson, I.A.

AUTHORS: Zusman, V.G. and Vul'fson, I.A.

121-4-3/32

TITLE: Certain Problems in Designing Systems of Digital Programme Control for Machine Tools (Nekotoryye voprosy proyektirovaniya sistem tsifrovogo programmogo upravleniya stankami)

PERIODICAL: Stanki i Instrument, 1958, No.4, pp. 9 - 13 (USSR).

ABSTRACT: Digital programme control systems belong to one of three groups: 1) Performing setting-up motions of the working organs; 2) Controlling motions of the working organs by which the component shape is generated; 3) Controlling all machine motions in response to results computed from detecting element signals. In considering the first group, applicable in drilling, jig boring, horizontal boring and punching, the problem is to ensure the required accuracy together with the maximum rapidity of motions, both for setting-up and cutting. A typical control cycle is considered and a simple analysis is applied to determine optimum velocities and the required resolution of the digital control step. The second group is stated to be at the beginning of its technical development with many unsolved problems. A general discussion is devoted to the topics of: a) reduction of the required volume of information. In the general case, mathematical theory can be used to evaluate the volume of information required in relation to the permitted error

Card1/2

121-4-3/32

Certain Problems in Designing Systems of Digital Programme Control
for Machine Tools

(Kolmogorov, A.N. - "On Certain Asymptotic Properties of Wholly Bounded Metric Spaces", 1956, No.3, Doklady AN SSSR). In practice, the prevalence of straight lines and circles greatly simplifies the problem; b) appropriate dimensioning of drawings. Dimensioning convenient for digital control is illustrated by an example; c) the substitution of special programme control devices and keyboard machines for general electronic computing machines. Fig. 7 shows the configuration diagram of a device designed by ENIMS to translate digital information into impulse form using linear interpolation. The machine transfers the information from a perforated paper strip into a five-way magnetic impulse tape; d) the development of control devices directly associated with the machine tool in order to formulate the digital information by a kind of copying procedure. The third group of programme control system is not discussed. There are 7 figures and 4 Russian references.

AVAILABLE: Library of Congress

Card 2/2

1. Machine tools (Automatic) 2. Machine tools-Control systems

ZUSMAN, V.G.; VUL'FSON, I.A.

Selecting a coded decimal system. Stan. i instr. 31 no.9:3-6 S
'60. (MIRA 13:9)

(Machine tools--Numerical control)

ZUSMAN, V.G.; ~~VUL'FSON, I.A.~~

Designing numerical control systems for machine tools. Stan. 1 instr.
29 no.4:9-13 Ap '58. (MIRA 11:5)
(Machine tools--Numerical control)

VUL'FSON, I.A.; ZUSMAN, V.G.; RATMIROV, V.A.

Automatic control of cutting conditions on program controlled milling
machines. Stan. i instr. 36 no.9:1-4 S '65. (MIRA 18:10)

VUL'FSON, I. A., Engineer

Cand. Tech. Sci.

Dissertation: "Certain Problems of Setting Up a Multiple-Tool Machine."

8 Mar. 49

Moscow Mechanics Inst.

SO Vecheryaya Moskva
Sum 71

ZUSMAN, V.G.; VUL'FSON, I.A.

Program controlled machines. Stan. 1 instr. 26 no.7:1-9 J1
'56. (MLRA 9:10)

(Machine tools--Numerical control)

RUZINOV, L.D.; LEBEDEV, P.A., kand. tekhn. nauk, retsenzent;
VUL'FSON, I.I., kand. tekhn. nauk, retsenzent; VAL'KOVSKIY,
A.A., kand. tekhn. nauk, red. [deceased]

[Design of mechanisms based on geometric transformations]
Proektirovaniye i raschet mekhanizmov na osnove geometri-
cheskikh preobrazovaniy. Moskva, Mashinostroeniye, 1964.
147 p. (MIRA 17:12)

VUL'FSON, I.I.

Dynamics of a flexible follower taking damping into con-
sideration. Teor. mash. i mekh. no.94/95:15-25 '63.
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Selecting efficient values for phase angles of a cam mechanism under
certain supplementary conditions. Trudy Inst.mash.Sem.po teor.mahs.
22 no.85/86:14-29 '61. (MIRA 14:12)

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VUL'FSON, I.N.

Capillariscopy in acute nephritis in children. Vop. okh. mat. i det.
4 no. 5:24-28 S-O '59. (MIRA 13:1)

1. Iz 2-y Moskovskoy gorodskoy klinicheskoy detskoy bol'nitsy imeni
I.V. Rusakova (glavnyy vrach - zasluzhennyy vrach RSFSR dotsent
V.A. Kruzhkov, nauchnyy rukovoditel' - prof. M.M. Bubnova).
(KIDNEYS--DISEASES) (CAPILLARIES)

VUL'FSON, I. N., Cand Med Sci -- (diss) "Changes in the cardiovascular system in acute diffusive nephritis in children." Moscow, 1960. 12 pp; (Second Moscow State Medical Inst in N. I. Pirogov); 250 copies; price not given; (KL, 21-60, 129)

VERBITSKIY, V.I.; VUL'FSON, I.N.; PETROVA, R.F.

Hormonal therapy for nephritis in children. Vop.okh.mat.1 det.
7 no.8:12-18 Ag '62. (MIRA 15:9)

1. Iz kafedry gosptal'noy pediatrii (zav. - prof. K.F.Popov)
II Moskovskogo meditsinskogo instituta imeni N.I.Pirogova i
Detskoy gorodskoy klinicheskoy bol'nitsy imeni I.V.Rusakova
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Neurological complications in diabetes mellitus in children. Vop.
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VUL'FSON, I.M.

Cardiovascular changes in children with acute nephritis.
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1. Iz II Moskovskoy gorodskoy klinicheskoy detskoy bol'nitsy imeni
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(KIDNEYS--DISEASES)
(CHILDREN--DISEASES)

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Thrombasthenia, a rare form of hemorrhagic diathesis. *Pediatria*
36 no.10:79 0 '58 (MIRA 11:11)

1. Iz detskoy gorodskoy klinicheskoy bol'nitsy No.2 I.V. Rusakova
v Moskve.
(BLOOD PLATELETS)

CHUBINSKIY, Sergey Mikhaylovich; VUL'FSON, I.Z., red.; SENCHILO, K.K.,
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[Solar rays and their effect on the human body] Luchi solntsa
i deistvie ikh na organizm cheloveka. Moskva, Gos.izd-vo med.
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(SOLAR RADIATION--PHYSIOLOGICAL EFFECT)

KECHKER, Leonid Kharitonovich, kand. med. nauk; GLEZER, Genrikh
Abramovich, kand. med. nauk; VUL'FSOK, I.Z., red.;
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"Meditsina," 1964. 182 p. (MIRA 17:3)

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BURAGO, Lyubov' Ivanovna; VUL'FSON, I.Z., red.

[Standard exercises in therapeutic and prophylactic cal-
listhenics for the middle aged and the elderly] Tipovye
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lits srednego i pozhilogo vozrasta. Izd.2., dop. Mo-
skva, Meditsina, 1965. 22 p. (MIRA 18:5)

IVANOV, Sergey Mikhaylovich, prof.; VUL'FSON, I.Z., red.

[Exerciese therapy in bronchial asthma in children]
Lechebnaia fizkul'tura pri bronkhial'noi astme u detei.
Moskva, Meditsina, 1965. 102 p. (MIRA 18:5)

DANISHEVSKIY, G.M., prof., red.; VUL'FSON, I.Z., red.; MINONOVA,
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[Problems of climatopathology in the clinical aspects of
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1. Nauchnaya konferentsiya po voprosam klimatopatologii v kli-
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(CARDIOVASCULAR SYSTEM--DISEASES) (CLIMATOLOGY, MEDICAL)

KOCHERGIN, I.G., prof., red.; VUL'FSON, I.Z., red.; ROMANOVA, Z.A.,
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[Physician's calendar for 1964] Kalendar' vracha na 1964
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1963. 550 p. (MIRA 17:1)
1. Chlen-korrespondent AMN SSSR (for Kochergin).

AKULOVA, R.F.; BYKHOVSKIY, Z.Ye.[deceased]; VIGODNER, Ye.B.;
GOL'DFAYL', L.G.; DIK, V.G.; DMITRIYEVA, N.M.; DUBYNINA,
Ye.I.; LEVIN, B.S.; NEZLIN, S.Ye.; SPERANSKIY, N.I.;
SOROKINA, Ye.I.; TKACHENKO, A.F.; FREYDIN, Kh.M.;
CHETVERIKOV, N.S.; VUL'FSON, I.Z., red.; KOKIN, N.M., tekhn.
red.; PRONINA, N.D., tekhn. red.

[Manual for physicians on the selection of sanatoriums and
health resorts] Rukovodstvo dlia vrachei po sanatorno-
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(MIRA 16:12)

(SANATORIUMS)

(HEALTH RESORTS, WATERING PLACES, ETC.)

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KURASHOV, S.V., red.; GOL'DFAYL', L.G., red.; POSPELOVA,
G.N., red.; Prinsipali uchastiye: BAKHMAI, V.I., kand. khim.
nauk, red.; IVANOV, V.V., kand. med. nauk, red.; KARAYEV,
R.G., kand. med. nauk, red.; LARICHEV, L.S., red.; NEVRAYEV,
G.A., red.; OPPENGHEIM, D.G., kand. med. nauk, red.;
POLTORANOV, V.V., red.; CHUBUKOV, L.A., doktor geogr. nauk,
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[Health resorts of the U.S.S.R.] Kurorty SSSR. Moskva, Medgiz,
1962. 797 p. (MIRA 15:11)
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lakticheskoi gimnastiki dlia lits srednego i pozhilogo
vozrasta. Moskva, Gos.izd-vo med.lit-ry, 1959. 27 p.
(EXERCISE THERAPY) (MIRA 13:5)

REYZMAN, Anna Mineyevna; BAGROV, Feliks Il'ich; VUL'FSON, I.Z.,
red.; PROKHINA, N.D., tekhn. red.

[Exercise therapy and massage in scoliosis] Lechebnaia gim-
nastika i massazh pri skoliozakh. Moskva, Medgiz, 1963. 139 p.
(MIRA 16:12)

(SPINE--ABNORMALITIES AND DEFORMITIES)
(EXERCISE THERAPY) (MASSAGE)

K. VUL'FSON.

K. Vul'fson. An impulse mass-spectroscope. P. 299

SO: Uspekhi Achievements in Physical Sciences, 43, No. 2 (Feb. 1951)

Dispersion of photons and the law of the conservation of energy and the quantity of motion. K. Volfson, *L'Esprit* Fis. Year 17, 93-105 (1937). — Review. V. concludes from various expt. data that the law of the conservation of energy and momentum holds for interaction of matter with radiation. P. H. Kathmann

CIA-RDP86-00513R001961310008-2"

BE

17-1

Sensitivity threshold of a gas radiometer.
K. VILBRON (Compt. rend. Acad. Sci. U.R.F.S., 1936,
21, 224-227).—Theoretical. A gas radiometer, of
no matter what design, cannot attain the sensitivity
claimed by Hayes (Rev. Sci. Instr., 1936, [II], 7, 202).
A. J. M.

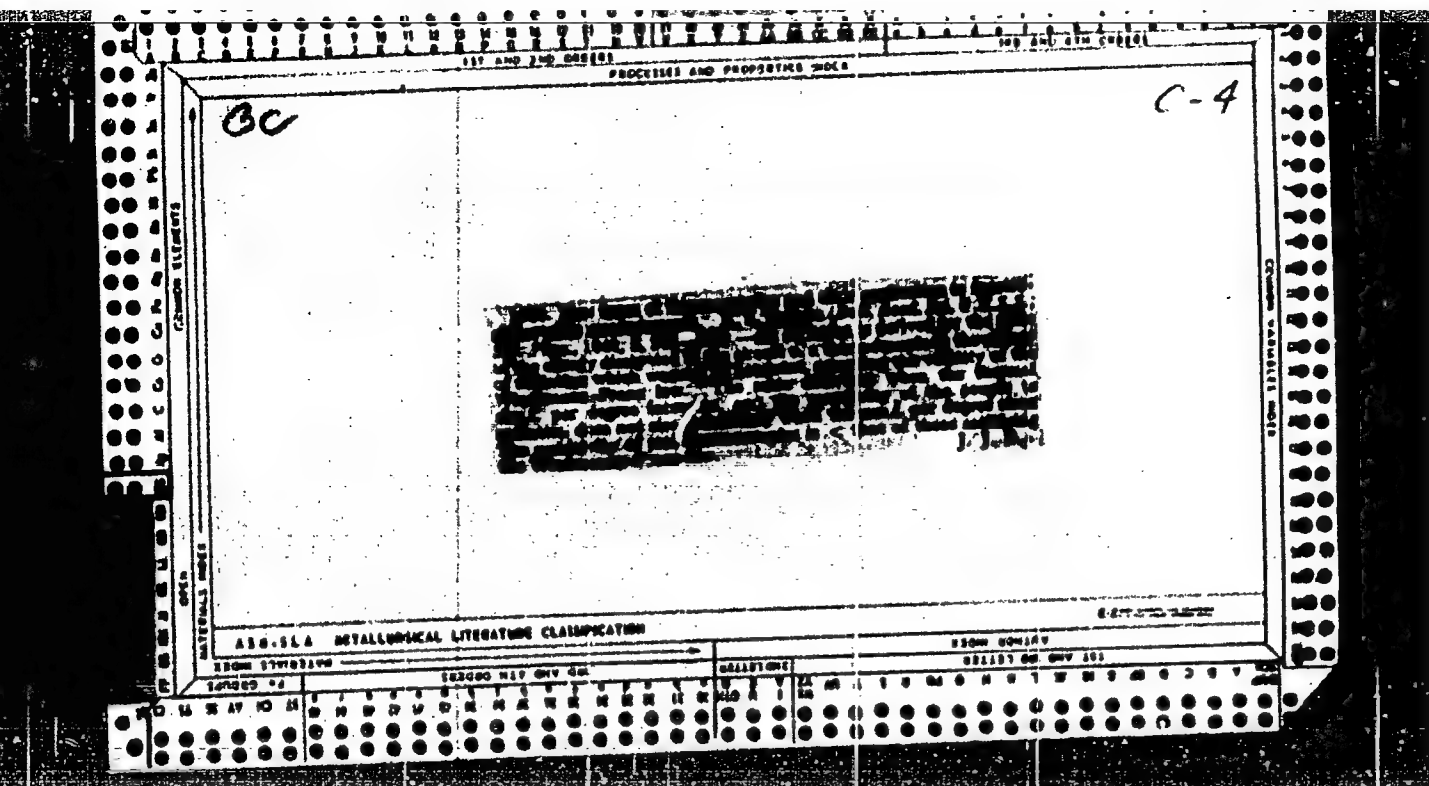
43N-55A METALLURGICAL LITERATURE CLASSIFICATION

SHABAD, I.M., prof., glav. red.; VERMEL', Ye.M., prof., zam. glav. red.; KONOPLEV, V.P., zam. glav. red.; GEL'SHTEYN, V.I., red.; KRICHEVSKAYA, A.A., red.; SHAPOT, V.S., red.; VUL'FSON, K.G., red.; GONCHAROVA, T.I., tekhn. red.

[Transactions of the Eighth International Cancer Research Congress in six volumes] Trudy vos'mogo Mezhdunarodnogo protivorakovogo kongressa v shesti tomakh. Moskva, Medgiz, 1963. Vol.2. [Problems in the biochemistry of cancer and cancerogenesis] Voprosy biokhimii raka i kantserogeneza. 586 p. Vol.4. [Problems in the biology of the cancer cell and radiobiology, radiotherapy and precancer] Voprosy biologii opukholevoi kletki i radiobiologii, luchevoi terapii i pred-raka. 410 p. (MIRA 17:1)

1. Mezhdunarodnyy protivorakovyy kongress, 8th. Moscow.
2. Deystvitel'nyy chlen AMN SSSR (for Shabad).

PROCESSING AND PREPARATION INDEX																									
1ST AND 2ND CATEGORIES													3RD AND 4TH CATEGORIES												
<p>Dispersed light in a quartz crystal. K. N. Vutskov and M. I. Lounine (Obozr. i. Akad. Sci. U.S.S.R., 1966, 21, 26-27).--The intensity of dispersed light in quartz crystals is measured between 0° and 700° K. for different directions in the crystals. The relation between the intensity of the dispersed light and the electric, optic, and crystallographic axes is discussed.</p> <p style="text-align: right;">V. J. L.</p>																									
<p>ASAC-11A METALLURGICAL LITERATURE CLASSIFICATION</p>																									
FROM DISPOSITION													FROM DISPOSITION												
SUBJECT													SUBJECT												
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Up. A-10

Time scanning of impulse discharge spectra. S. J. Bogdanov and K. S. Vul'gon (Compt. rend. Acad. Sci. U.S.S.R., 1941, 30, 311-314). A circuit for producing periodic discharges using a thyatron in series with a condenser and the discharge tube is described. Spectra of the impulse discharge in Kr at various c.d. show that lines belonging to the Kr II spark spectrum increase considerably in intensity with increase of c.d. The lines of the Kr I arc spectrum do not vary greatly in intensity with c.d. By using a rotating mirror, the variation of the spectrum during the impulse itself has been investigated. The behaviour of arc and spark lines can thus be examined. The emission of spark lines takes place during the first phase of the discharge, when the c.d. and ionisation are a max. The intensity of the arc lines attains a max. later in the discharge, when the spark lines are beginning to decrease.

A.J.M.

PROCESSES AND PROPERTIES INDEX

3

Temperature and degree of ionization of the gas in impulse discharge. S. Ya. Bogdanov and K. S. Vul'fon. *Compt. rend. acad. sci. U. R. S. S.* 40, 267-8(1943)(in English).--Kaptl. evidence on the processes occurring during impulse discharges in lamps filled with Kr or A indicates the following mechanism of discharge. In the first moment after the breakdown, the electrons move with high velocities owing to the action of the elec. field, and their temp. attains very high values. During the succeeding time interval the degree of ionization and the temp. of the gas begin to increase because of collisions of electrons with atoms and ions. As the degree of ionization increases so does the intensity of spark lines, since, owing to the high energy of the electrons, the process of ionization becomes more probable than processes of excitation. When the discharge vanishes, a gradual recombination of ions and electrons begins and this is accompanied by radiation of a continuous background and arc lines.

J. W. Perry

A50-SLA METALLURGICAL LITERATURE CLASSIFICATION

FROM SYNDICATE

107049 01 107050 01 011010 01 011011 01

AL N I 1 M O N 7 M P 3 B 5 8 6 2

CROSS REFERENCE		DETAILS AND DESCRIPTION		CROSS REFERENCE	
CROSS REFERENCE		<p>Impulse discharge in inert gases. A. S. Vul'fon, <i>Bull. Acad. Sci. U.R.S.S., Ser. phys.</i> 9, 250-16 (1945). The spectral character of the impulse discharge is different from that of an arc or a spark discharge owing to the high temp. and the complete ionization. The highest luminosity is obtained in gases having a great number of visible spark lines. Krypton gives the highest brilliancy (100 candles per sq. cm. compared to 20 in A and 1 in He). S. P.</p>		CROSS REFERENCE	
CROSS REFERENCE		<p>ASSOCIATE METALLURGICAL LITERATURE CLASSIFICATION</p>		CROSS REFERENCE	
CROSS REFERENCE		<p>ASSOCIATE METALLURGICAL LITERATURE CLASSIFICATION</p>		CROSS REFERENCE	

1ST AND 2ND ORDER										100 AND 2TH ORDERS									
PROCESSES AND PROPERTIES INDEX																			
<div style="position: relative; height: 100px;"> SA in file </div>										<div style="position: relative; height: 100px;"> A53 0 </div>									
										<p>537.327.415:621.327.4 - 82</p> <p>Pulse discharge in inert gases. VILKINS, K. S. <i>Zhurnal Fizicheskoy Khimii</i> (No. 11) 16-23 (1946) 217-220. The electrical characteristics of pulse discharges in lamps filled with Ar, Kr, Xe and Ne are discussed. The "plasma" resistance is measured, and the radiation intensity is shown to be proportional to applied energy and much higher than similar discharges in air. A shock wave is formed by the pulse, causes an increase of pressure and thus causes a second light flash. Two periods are considered, radiating a "spark" and an "arc" spectrum. Practical applications for spectroscopy, spectral analysis, photography of rapidly moving objects, etc., are discussed briefly.</p> <p style="text-align: right;">A. L.</p>									
<div style="display: flex; justify-content: space-between;"> <div> <p>537.327.415:621.327.4 - 82</p> <p>537.327.415:621.327.4 - 82</p> </div> <div> <p>537.327.415:621.327.4 - 82</p> <p>537.327.415:621.327.4 - 82</p> </div> </div>																			

PROCESSING AND PROPERTIES INDEX	
SA	A 53 1
535.8	
2593. Apparatus for the optical projection of the filament of an electrometer. K. S. Vulfov. J. Tech. Phys., USSR, 20, 758-9 (June, 1950) In Russian.	
The apparatus was specially designed for the electrometer of a Zeiss recording photometer and is based on the auto-collimating principle. It is, however, universally useful, as only the microscope of the electrometer has to be removed and replaced by the simple projecting apparatus. The source of light is a 200 W Hg lamp.	
B. F. Kraus	
ASB-51A METALLURGICAL LITERATURE CLASSIFICATION	

8A

A 53

535.23

7650. An absolute method of measuring the black-body temperature. K. S. Vul'fon. J. Exp. Theor. Phys., USSR, 21, 507-9 (April, 1951) In Russian. The new method is based on the comparison of the intensities of the spectral radiation at various wave-lengths for two different temperatures. The laws of the black-body radiation enable, in the spectral intervals are sufficiently far from each other, both temperatures to be determined unequivocally. Two special advantages of the method are that neither the spectral transparency of the monochromator nor the spectral sensitivity of the receiving apparatus need be known, and that no radiation etalon of known spectral distribution is required. The theory is given for one of the waves lying in the range of validity of Wien's (approximate) law, the other in the long-wave part of the spectrum where the Rayleigh-Jeans approximation holds. The most general case is then considered on Planck's formula. The method cannot claim a particular accuracy, but its value resides in its suitability as a check on other methods, and for the gradation of optical pyrometers. It is furthermore suitable for measuring the temperatures of grey and selective radiators, the spectral emissivity of which is independent of the temperature. B. F. Kraus

180741

USSR/Electricity - Discharge, Gas

Apr 51

"Widening of Impulse Discharge Channel Through Inert Gases," K. S. Vulfson, I. Sh. Libin, All-Union Elec Eng Inst

"Zhur Eksper 1 Teoret Fiz" Vol XXI, No 4, pp 510-513

Measured velocity of widening of spark discharge channel through argon, krypton and xenon by rotating mirror. Observed glowing of gas under action of reflected shock wave. Describes case of formation of 2 independent channels in gases.

LC

180741

VUL'FSON, K. S., LIBIN, I. Sh.

Spectrophotometer

Slit radiator for spectrophotometric measurements. Zhur. tekhn. fiz. 22 no. 3 (1952)

9. Monthly List of Russian Accessions, Library of Congress, August 1952 ~~1953~~, Uncl.

VUL'FSON, K.S.; LIBIN, I.Sh.; CHARNAYA, P.A.

APPROVED FOR RELEASE: 09/01/2001

CIA-RDP86-00513R001961310008-2"

Investigation of the instantaneous brightness of impulse discharge channels in inert gases. Izv. AN SSSR. Ser. fiz. 19 no.1: 61-64 Ja-P '55.

(MIRA 8:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy svetotekhnicheskiy institut.

(Spectrum analysis) (Spectrometer)

LIBIN, Izrail' Shneyerovich; VUL'FSON, K.S., relaktor; SKVORTSOV, I.M.,
tekhnicheskiiy redaktor

[Stroboscopes and their use] Stroboskopy i ikh primeneniye. Moskva,
Gos. energ. izd-vo, 1956. 39 p. (Massovaya radiobiblioteka, no.246)
(Stroboscope) (MLRA 9:11)

Dokl.Akad.Nauk, 109, fasc.5, 929-930 (1956) CARE 2 / 2

PA - 1442

(only some meters) and can therefore be determined interferometrically with great accuracy. The mirror is best shifted in such a manner that the repetition frequencies of the light impulses are identical with the harmonics of the quartz generator used for gauging. In this case frequencies are determined with particular accuracy. The repetition frequencies of the flashes of light can be determined by means of the gauging generator by the method of LISSAJOU'S figures. On this occasion measuring accuracy is determined by the average stability of both the gauging generator and the measuring device itself. The immobility of LISSAJOU'S figures on the screen of the cathode oscillograph can be observed for any length of time. In this way it is possible to attain greater accuracy of comparison than by comparing the phases (as is the case with other methods for measuring the velocity of light). At present comparison attains a degree of accuracy of from 10^{-7} to 10^{-8} . Distances of the order of several meters can be determined with the same degree of accuracy and this accuracy is therefore also attained for the determination of the velocity of light. So high a velocity naturally necessitates designing and constructing devices with very stable parameters.

INSTITUTION:

DEYNEGA, F.D.; VUL'ISON, M.G.; PYL'NEN'KIY, A.A., redaktor; VUYEK, M.P.,
 tekhnicheskii redaktor.

[Brewing beer according to new techniques] Proizvodstvo piva po
 novoi tekhnologicheskoi skheme. Kiev, Gos.izd-vo tekhn. lit-ry
 USSR, 1954. 61 p. (Microfilm) (MIRA 9:5)
 (Beer)

VUL'ISON, K.S., prof.; GUREVICH, M.M., prof.; MESHKOV, V.V., prof.; NILENDER,
 R.A., prof. YUROV, S.G., kand. tekhn. nauk; SOKOLOV, M.V.,
 DUBOVAN, M.M., kand. tekhn. nauk; BUTALOVA, F.A., kand. tekhn. nauk;
 IVANOVA, N.S., kand. tekhn. nauk; SUSHKIN, N.G., kand. tekhn. nauk.

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R001961310008-2

Valentin Aleksandrovich Fabrikant; on his 50th birthday. Svetotekh-
 nika 3 no.12:24-25 D '57. (MIRA 11:1)
 (Fabrikant, Valentin Aleksandrovich, 1907-)

ARTEM'YEV, A.A., kand.tekhn.nauk; STEEL'TSOVA, A.A., kand.khim.nauk;
GEMKINA, Ye.V., kand.tekhn.nauk; VUL'FSON, K.S., doktor fiz.-
mat.nauk

Photochemical nitroization with nitrosyl chloride. Khim.nauk i
prom 3 no.5:629-636 '58. (MIRA 11:11)
(Nitrosyl chloride) (Photochemistry) (Hydrocarbons)

VUL'FSON, K.S.; CHARHAYA, F.A.

Limit brightness of the channel of an impulsive discharge in
inert gases and in air. Fiz.sbor. no.4:73-76 '58.

(MIRA 12:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy svetotekhnicheskiy
institut.

(Electric discharges through gases)

24 (8), 9 (6)

AUTHOR:

Vul'fson, K. S.

SOV/20-125-6-12/61

TITLE:

The Use of Electron-optical Converters for the Accurate Measurement of the Velocity of the Propagation of Light
(Primeneniye elektronnoopticheskikh preobrazovateley dlya tochnogo izmereniya skorosti rasprostraneniya sveta)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 6,
pp 1223-1224 (USSR)

ABSTRACT:

Ye. K. Zavoytskiy and S. D. Fanchenko (Ref 1) described an electron-optical apparatus for measuring the duration of light flashes. The theoretical resolving power of this apparatus is 10^{-14} sec and in practice it is of the order of 10^{-13} sec. This device may also be used for an especially exact measurement of the propagation velocity of light. The scheme suggested for the arrangement of the devices is shown by a schematic drawing. A light source emits light pulses of as short a duration as possible and with a considerably curved front. A spark in a compressed gas between two miniature electrodes may serve as such a source. The duration of the luminosity of such a spark is $\sim 5 \cdot 10^{-10}$ sec. The light rays originating from

Card 1/3

The Use of Electron-optical Converters for the SOV/20-125-6-12/61
Accurate Measurement of the Velocity of the Propagation of Light

the light source pass through 2 semitransparent mirrors and are reflected by a third. The distance between the second mirror and the third is the basis for determining the propagation velocity of light. The reflected light rays incide upon the photocathode of an electron-optical converter which is fitted with deflecting plates and has a large amplification coefficient. To the deflecting plates of the converter the voltage of a high-frequency generator with accurately given frequency ($\lambda \sim 100$ cm) is then applied. According to the author's opinion the discussed measuring method is, at present, the most accurate means of measuring the velocity of light. Because of the shortness of the required basis length, measurements may also be carried out in a vacuum, so that one of the most important sources of errors, viz. the inaccurate determination of the refraction index of air, may be eliminated. Besides, when using a short basis length, accuracy may further be increased by the employment of interferometric methods. There are 1 figure and 1 Soviet reference.

Card 2/3

The Use of Electron-optical Converters for the SOV/20-125-6-12/61
Accurate Measurement of the Velocity of the Propagation of Light

ASSOCIATION: Moskovskiy gorodskoy pedagogicheskiy institut im.
V. P. Potemkina (Moscow State Pedagogical Institute imeni
V. P. Potemkin)

PRESENTED: October 13, 1958, by M. A. Leontovich, Academician

SUBMITTED: October 10, 1958

Card 3/3

VUL'FSON, K.S.

Kinetics of the operation of a photoreactor. Zhur. fiz.
khim. 39 no.6:1531-1535 Je '65. (MIRA 18:11)

1. Moskovskiy nauchno-issledovatel'skiy svetotekhnicheskiy
institut. Submitted April 1, 1964.

L 65182-65 EWT(a)/EPF(c)/EWP(t)/EWP(b) IJP(c) JD

ACCESSION NR: AP5021271

UR/0020/65/163/C05/1113/1114

AUTHOR: Vul'fson, K. S.; Libin, I. Sh.; Chernyak, A. Sh.

TITLE: The mechanism responsible for secondary radiation peaks during a pulse discharge in neon 27

SOURCE: AN SSSR. Doklady, v. 163, no. 6, 1965, 1113-1114

TOPIC TAGS: neon, gas discharge, pulse amplitude, plasma physics

ABSTRACT: Using a low-resistance discharger to bypass a neon gas discharge results in an additional emission pulse with an amplitude which may be twice the maximum emission of the discharge without bypassing. In a recently published paper (P. D. Johnson, T. H. Rautenberg, Jr., H. Harris, *J. Appl. Phys.*, 35, No 4, 1128, 1964), two possible mechanisms for this phenomenon were considered: 1) population inversion in excited levels; 2) disruption of recombination conditions due to a change in the behavior of the reduction in electron temperature of the discharge. The experimental examination of these hypotheses given by Johnson et al. definitely refuted the first mechanism and did not give any evidence in favor of the second. The authors of the present work propose that the effect is due to eddy currents which

Card 1/2

L 65182-65

ACCESSION NR: AP5021271

arise in the discharge plasma when there is a sharp change in the discharge current. This hypothesis was experimentally checked by the oscillograph method. It was found that any sharp change in the discharge current, no matter what the causes of this change, is always accompanied by secondary peaks in the neon emission. The amplitude of these peaks is directly related to the rate of change in the discharge current, and in certain cases is 8-10 times greater than that of the fundamental radiation peak. An inductance connected in series with the neon tube or with the bypass discharger always reduced the amplitude of these peaks, or eliminated them entirely. Analysis of the distribution of illumination in the cross section of the discharge also confirms the new hypothesis on the mechanism responsible for this phenomenon. This effect could possibly be used for producing extremely intense light pulses with a steep front. Orig. art. has 2 figures.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy sputnik tekhnicheskoy institut
(All-Union Scientific Research Institute of Lighting Engineering)

SUBMITTED: 22Jan65

ENCL: 00

SUB CODE: EN, ME

NO REF SOV: 002

OTHER: 002

Card 2/2 *1/26*

VUL'FSON, K.S.; CHARNAYA, F.A.

Measuring the diameter of a high-pressure pulse discharge
channel in different spectral regions. Opt. i spektr. 11
no. 4:549-551 O '61. (MIRA 14:10)
(Electric discharges) (Photometry)

S/051/61/011/004/004/004
E202/E592

AUTHORS: Vul'fson, K.S. and Charnaya, F.A.

TITLE: Measurement of channel diameter of a high pressure
impulse discharge in various spectral regions

PERIODICAL: Optika i spektroskopiya, v.11, no.4, 1961, 549-551

TEXT: The object of this work was to confirm experimentally
theoretical relations established by Unsold (Ref.7: Physics of
stellar atmospheres, IL, M., 1949) and V. O. Ambartsumyan
(Ref.8: Theoretical astrophysics, ONTI, M-L, 1949), indicating
that in a plasma, a given value of an absorption coefficient is
attained in long wavelength radiations at a much lower temperature
than in the corresponding shorter wavelength radiations. The
apparatus used by the authors permitted the study of the early
stages in the plasma discharge, and the widening of the channel
diameter in the luminous part of the spectrum. The light from
the discharge channel of a lamp was focused on the entry wedge
of a monochromator. This arrangement was used to select the
required portion of the channel. The time sequence control was
achieved by means of a rotating mirror objective projecting the

Card 1/3

Measurement of channel diameter ... S/051/61/011/004/004/004
E202/E592

exit wedge of the monochromator on the film in a high speed camera. The position of the rotating mirror was optically synchronized to the time of the discharge; the whole arrangement was capable of a time resolution of $7 \times 10^{-10} \text{ sec}^{-1}$, the monochromator width being 0.05 to 0.08 mm. The channel diameter was determined from photographs, by photometric scanning at right angles to the time axis, at intervals of 0.1 μsec . These data were used to plot the distribution curves of spectral luminosity (B_λ), against the distance measured at right angles to the longitudinal axis, across the diameter of the channel. The working parameters were as follows: pressure - 18 atm; circuit capacity - 0.6 μF ; energy dissipated - 5 kW; wavelengths 0.4 μ and 0.66 μ . Relations between the channel diameter and the time elapsed from the beginning of the discharge were also determined for xenon, krypton and argon lamps. It was shown that in all these gases the diameter in the long-wave radiations is greater than in the short-wave radiations. Furthermore, the luminous surface defining the diameter of the channel lay, in the case of the short-wave radiations, closer to the axis of the discharge than in the

Card 2/3

Measurement of channel diameter ... S/051/61/011/004/004/004
E202/E592

long-wave radiations and is thus in the region of higher temperature. The importance of this phenomenon lies in that it could be used in conjunction with the B_λ data to calculate the radial gradient of temperature in a plasma of this type. There are 3 figures and 15 references: 12 Soviet (1 a translation from non-Soviet) and 3 non-Soviet. The English-language references read as follows: Ref.4: H. Fischer. J.Opt.Soc.Amer. 47, 11, 1957; Ref.5: H. Fischer. Conference on extremely high temperatures, p.11, Boston, 1958.

SUBMITTED: November 28, 1960

Card 3/3



VUL'FSON, K.S.; CHARENAYA, F.A.

Investigating the brightness of the channel of a pulse discharge.
Usp. nauch. fot. 6:27-30 '59. (MIRA 13:6)
(Electric discharge lighting)

VUL'FSON, K.S.

SOV/81-59-19-67775

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 19, p 133 (USSR)

AUTHORS: Vul'fson, K.S., Charnaya, F.A.

TITLE: The Brightness Limit of the Channel of Pulse Discharge in Inert Gases and in Air

PERIODICAL: Fiz. sb. L'vovsk. un-t, 1958, Nr 4(9), pp 73 - 76

ABSTRACT: The dependence of the brightness of the pulse discharge channel in Xe, K₂, Ar and air, on the gas pressure, the capacitance of the capacitor and the tension on the capacitor has been investigated. With an increase in the pressure some increase of the channel brightness is observed in the inert gases but later on saturation sets in quickly. The highest value of the brightness limit has Ar, the smallest Xe. The spectral brightness limit practically does not depend on the capacitance of the capacitor in the range of 0.05 - 4 μ farad and on the tension on the capacitor. On attaining the limit value of brightness the discharge channel becomes a black-body radiator.

Card 1/1

L. Gribov ✓

ALISOVA, S.P.; VUL'F, L.B.; MARKOVICH, K.P.; PETROVA, L.A.; ROGACHEVSKAYA,
Z.M.; AGEYEV, N.V., red.; MOSSKVIN, R.Ya., red.; MUKHA, S.Ya.,
tekhn. red.

[State diagrams of metal systems published in 1957] Diagrammy
sostoiianiia metallicheskih sistem, opublikovannye v 1957 godu.
Pod red. N.V.Ageeva. Moskva. no.3. 1960. 270 p.

(MIRA 14:7)

(Alloys)

ALISOVA, S.P.; VUL'E, L.B.; MARKOVICH, K.M.; NOVIK, P.K.; PETROVA, L.A.;
ROGACHEVSKAYA, Z.M.; AGEYEV, N.V., red.; SOBOLEVA, N.M.,
tekhn.red.

[Phase diagrams of metallic systems published in 1955] Diagrammy
sostoiانيا metallicheskikh sistem, opublikovannye v 1955 godu.
Pod red. N.V.Ageeva. Moskva. No.1. 1959. 134 p.

(MIRA 13:12)

(Alloys)

(Phase rule and equilibrium)

VULFSON M.																									
PROCESSES AND PROPERTIES INDEX													TEST AND MEASUREMENTS												
<p>Potassium chlorate production. S. D. STUPNITOV AND M. VULFSON. <i>J. Chem. Ind. (Moscow)</i> 6, 1741-60(1929).—A review and comparison between the chem. and electro-chem. methods of production of $KClO_3$. The chem. method is more efficient. R. S.</p>																									
<p>ASAC-51A METALLURGICAL LITERATURE CLASSIFICATION</p>																									
<p>SECTION 1A</p>													<p>SECTION 1B</p>												
<p>SECTION 1C</p>													<p>SECTION 1D</p>												

VUL'ESON, M., kand. ekonom. nauk

The role of the new freight rates in increasing the economic efficiency of river transportation. Rech. transp. 24 no.6:6-8 '65. (MIRA 18:8)

VUL'FSON, M., kand.ekonom.nauk

New norms for amortization deductions in the fleet.
Rech. transp. 21 no.12:14-16 D '62. (MIRA 15:12)
(Inland water transportation--Accounting)
(Amortization)

VUL'FSON, M.

Depreciation problems of the towing fleet. Mor.1 rech.flot 14
no.2:15-18 F '54. (MLRA 7:1)

1. TsNIEVT.

(Tugboats)

VISHNEPOL'SKIY, S.A., kand. ekon. nauk; BAYEV, S.M., inzh. putey soob-
shcheniya; BONDARENKO, V.S.; RODIN, Ye.D.; CHUVLEV, V.P.;
TURETSKIY, L.S.; SMIRNOV, G.S.; SHAPIROVSKIY, D.B.; OBERMEYSTER,
A.M.; SINITSIN, M.T.; KOGAN, N.D.; PETRUCHIK, V.A.; GRUNIN, A.G.;
KOLESNIKOV, V.G.; MARTIROSOV, A.Ye.; KROTKIY, I.B. [deceased];
ZENEVICH, G.B.; MEZENTSEV, G.A.; KOLOMOYTSSEV, V.P., kand. tekhn. nauk;
ZAMAKHOVSKAYA, A.G., kand. tekhn. nauk; MAKAL'SKIY, I.I., kand.
ekon. nauk; MITROFANOV, V.F., kand. ekon. nauk; CHILIKIN, Ya.A.;
BAKAYEV, V.G., doktor tekhn. nauk, red. Prinimali uchastiye:
DZHAYAD, Yu.Kh., red.; GUBERMAN, R.L., kand. ekon. nauk, red.;
RYABCHIKOV, P.A., red.; YAVLENSKIY, S.D., red.; BAYRASHEVSKIY,
A.M., kand. tekhn. nauk, red.; POLYUSHKIN, V.A., red.; BALANDIN,
G.I., red.; ZOTOV, D.K., red.; RYZNOV, V.Ye., red.; BOL'SHAKOV, A.N.,
red.; VUL'FSON, M.S., kand. ekon. nauk, red.; IMITRIYEV, V.I., kand.
ekon. nauk, red.; ALEKSANDROV, L.A., red.; LAVRENOVA, N.B., tekhn.
red.

[Transportation in the U.S.S.R.; marine transportation] Transport
SSSR; morskoi transport. Moskva, Izd-vo "Morskoi transport,"
1961. 759 p. (MIRA 15:2)

(Merchant marine)

KOLOMOYTSEV, Valentin Pavlovich; YUL'FSON, M.S., red.; KSENOFONTOVA,
Ye.F., red.isd-va; LAVRENOVA, N.B., tekhn.red.

[Cost of sea transportation] Sebestoimost' morskikh perevozok.
Moskva, Izd-vo "Morskoi transport," 1960. 371 p.

(MIRA 14:4)

(Merchant marine--Cost of operation)

MITAISHVILI, A.A., kand.ekonom.nauk; VUL'FSON, M.S., kand.ekonom.nauk;
AZROVA, A.G., red.

[Economy of river transportation of freight] Ob ekonomichnosti
rechnykh perevozok. Moskva, TSentr.nauchno-issle.in-t ekon.
i eksploatatsii vodnogo transp., 1959. 92 p. (MIRA 12:7)
(Inland water transportation)

VUL'FSON, M.S., kand. ekon. nauk

Methods of determining the obsolescence of river vessels. *Rech.*
transp. 18 no.4:14-16 Ap '59. (MIRA 13:1)
(Ships) (Inland water transportation--Accounting)

GUREVICH, Sheftel' Moiseyevich, kand.ekonom.nauk; VUL'FSON, M.S.,
retsensent; DUKOR, Z.G., red.; KAN, P.M., red.izd-va;
YERMAKOVA, T.T., tekhn.red.

[Technical and economic factors in major repair operations
and modernization of river vessels] Tekhniko-ekonomicheskie
obnovaniia kapital'nogo remonta i modernizatsii rechnykh
sudov. Moskva, Izd-vo "Rechnoi transport," 1958. 130 p.
(MIRA 12:4)

(Ships--Maintenance and repair)

TURETSKIY, Lev Solomonovich; NOVIKOV, Oleg Aleksandrovich;
VUL'ESON, M.S., red.; KSENOFONTOVA, Ye.F., red. izd-va;
TIKHONOVA, Ye.A., tekhn. red.

[Amortization of capital assets of the merchant marine]
Amortizatsiia osnovnykh fondov morskogo transporta. Moskva,
Izd-vo "Morskoi transport," 1963. 121 p. (MIRA 16:7)
(Merchant marine--Finance)

VULFSON, M. F.

Chemical Abst.
Vol. 48 No. 5
Mar. 10, 1954
Organic Chemistry

~~α -Hydroxy acids. Notes about the paper by A. M. Gakhovskiy on "condensation of ketones with esters of organic acids." N. F. Vulfson, J. Gen. Chem. U.S.S.R. 22, 783-X (1952) (Engl. translation).—See C.A. 47, 2701h. H. L. H.~~

VUL'FSON, N. I.

Cand. Physicomath Sci.

Dissertation: "Circulation Factors of the Aridity of Lower Volga Region,
Kazakhstan and Central Asia."

1/3/50

Geophysical Inst. Acad. Sci. USSR

SO Vecheryaya Moskva
Sum 71

VULFSON, N. I.

USSR/Geophysics - Meteorology

Mar/Apr 51

"Computation of Nonzonal Case of Stationary Circulation of Atmosphere," N. I. Vulfson, Geophys Inst, Acad Sci USSR

"Iz Ak Nauk, Ser Geog i Geofiz" No 2, pp 56-74

Proposes that in summer relatively independent circulatory ring exists over North Africa, South Europe and Southwest Asia and its downward branches dominate the climate. Computes wind velocities of components of this ring to prove this assumption with affirmative results. Submitted by Acad V. V. Shuleykin.

180767

Author: Vul'fson, H.I.

Title: Circulation factors in the dryness of the region of the lower
Volga, Kazakhstan and central Asia.

Journal: Doklady Akademii Nauk SSSR, 1951, Vol.77, No.2, p.253

Subject: Geophysics

From: D.S.I.R. Oct 51

VUL'FSON, N. I.

USSR/Geophysics - Convective
Currents

11 Jul 53

"Methods for Studying the Convective Movements in a
Free Atmosphere," N. I. Vul'fson, Geophys Inst, Acad
Sci USSR

DAN SSSR, Vol 91, No 2, pp 233-236

Proposes a method in which a horizontally flying
airplane equipped with a sensitive thermometer
records the ascending air currents intersected by
the airplane as a zone with several very high temps,
higher than in the surrounding space. Presented by
Acad O. Yu. Shmidt 16 Jun 53.

276T54

L 22640-65 EN(1)/ECO GW

ACCESSION NR: AP5000914

S/0020/14/159/004/0786/0783

AUTHOR: Vul'fson, N.I., Ivancev, V.N.

TITLE: Structure of a temperature field in cumulus clouds

SOURCE: AN SSSR. Doklady, v. 159, no. 4, 1964, 786-788

TOPIC TAGS: dimensional equation, structural formula, structural function, temperature field, temperature sensor, cumulus cloud

ABSTRACT: This article attempts to determine the magnitudes of a temperature field and the inhomogeneities in cumulus clouds. The authors begin with the premise that the inhomogeneities depend on the dissipation rate of turbulent energy ϵ and the similarity of the temperature field N . By using dimensional equations, they determine the magnitude of the inhomogeneities N . Then, by means of structural formulas, they determine the magnitude of the temperature field N . It is pointed out, however, that the inertia of the temperature detecting element must be taken into account when the structural formulas are used. As shown in the Fig. 1 and Fig. 2, the two fields N are determined. Orig. art. has: 1 table, 2 figures, and 3 formulas.

Card 1/3

L 22640-65

ACCESSION NR: AP6000914

ASSOCIATION: Institut prikladnoy geofiziki (Applied geophysics institute)

SUBMITTED: 11 Jun 64

ENCL: 01

SUB CODE: ES

NO REF SOV: 006

OTHER: 000

Cord 2/3

VUL'FSON, N. I.

USSR/ Geophysics

Clouds

Card : 1/1

Authors : Vul'feon, N. I.

Title : Convective movements in cumuli (heap clouds)

Periodical : Dokl. AN SSSR, 97, Ed. 1, 77 - 80, July 1954

Abstract : Experimental data reflecting numerous characteristic features of convective movements in cumuli, are presented. The data do not include about 10% of much colder streams of the surrounding space observed outside of the clouds with a convection maximum close to the condensation level. The negative intensity of these streams is explained, and the direction of motion of the cold streams and the rate of motion are described. All characteristics of the convective motions were calculated with consideration of the cold streams. One USSR reference. Tables, graphs.

Institution : Acad. of Sc. USSR, Geophysics Institute

Presented by : Academician, G. A. Gamburtsev, March 26, 1954

VUL'TSOV, N.I.

Method of studying convection in the free atmosphere. Izv.AN
SSSR.Ser.geofiz. no.5:549-561 My '56. (MLRA 9:8)

1. Akademiya nauk SSSR, geofizicheskiy institut.
(Heat--Convection) (Atmosphere)

Verlan, N. I. and Levin, L. M. Plata merkhuyeda mestnaya konferentsiya po vo-
protsu izucheniya oblakov, osadkov i gorizontalnoy elektrichnosti. [First international
 conference on cloud, precipitation and thunderstorm electricity research.] Akademiya Nauk
 SSSR, Izvestia, Ser. fiz.-mat. No. 6:735-739, June 1956. 1 LC—This conference was held
 during Feb. 6-11, 1956 at the Central Geophysical Observatory. Some sixty reports were
 presented on work carried out during the first three years. Brief summaries are given of
 about thirty of the papers that were presented. Subject Headings: 1. Conferences 2. Cloud
 3. Thunderstorm electricity.—L.D.

Vul'Fson, N.I.

VUL'FSOM N.I.

Conditions of formation of cumulus in a mountainous region.
Izv.AN SSSR Ser.geofiz.no.7:821-830 JI '56. (MIRA 9:9)

1.Akademiya nauk SSSR, Geofizicheskiy institut.
(Clouds)

307/169-59-2-1739

Translation from: Referativnyy zhurnal, Geofizika, 1959, Nr 2, p 114 (USSR)

AUTHOR: Vul'fson, N.I.

TITLE: A Method for Studying the Convective Movements in the Free Atmosphere and Some Results From Measurements

PERIODICAL: V sb.: Issled. oblakov, osadkov i grozovogo elektrichestva. Leningrad, Gidrometeoizdat, 1957, pp 48 - 49

ABSTRACT: The results of investigations of the convective movements in the free atmosphere are briefly expounded. The observations are carried out by means of an air-borne thermometric equipment recording the ascending streams and bubbles as regions of higher temperature in comparison with the surrounding space. The root-mean-square error in determining the excess of the temperature in a stream amounted to about 0.02°C . The excesses of the temperature in streams amount on the average to $0.2 - 0.3^{\circ}\text{C}$. The mean dimensions and the spectra of the streams vary little with the altitude and during the day (with the exception of the lower 100 - 300 m). The variations of the temperature in the streams and the frequency of their origination have diurnal course. The dimensions of

Card 1/2

SOV/169-59-2-1739

A Method for Studying the Convective Movements in the Free Atmosphere and Some Results From Measurements

the streams and the excesses of the temperature in the cumuli are greater than out of the clouds; their magnitudes increase with the distance from the cloud base. The convective streams in the clouds are intensified when moving upward on account of the liberation of the latent condensation heat. The excess of the temperature in the streams is not depending on its dimensions, with the exception of the lower layer of 100 - 300 m. The streams have greater dimensions and temperature and reach greater altitudes above mountain sides and crests none covered with snow than above the adjacent valleys. Above crests, the height of the streams exceeds the altitude of the cumuli. (In-t prikl. geofiz. AS USSR, Moscow).

M.S. Malkevich

Card 2/2

VUL'FSON, N.I.

Compensatory descending currents dependent on developing cumulus clouds. Izv.AN SSSR. Ser.geofiz.no.1:94-103 Ja '57. (MLRA 10:3)

1. Akademiya nauk SSSR. Institut prikladnoy geofiziki.
(Clouds) (Atmosphere)

AUTHOR: VUL'FSON, N.I. PA - 2240
TITLE: A Method of Studying downward Compensation Air Currents about Developing Cumuli (Metod izucheniya kompensatsionnykh niskhodyashchikh techeniy okolo razvivayushchikh kuchevykh oblakov, Russian).
PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol 112, Nr 4, pp 626 - 627 (U.S.S.R.)
Received: 4 / 1957 Reviewed: 5 / 1957
ABSTRACT: The method of the indication of the downward compensation currents due to developing cumuli is based upon the following ideas: The downward compensation currents begin near the upper boundary of the clouds where usually a rather slight temperature drop with height, sometimes isothermic states or even temperature reverse is observed. Therefore, air in the compensation currents is warmer than the surrounding atmosphere, so that the air is heated nearly adiabatically. In that layer where cumuli develop, the temperature gradient cannot be higher than the adiabatic one. The downward convection currents are easily fixed by a similar method as in the case of upward convection currents, namely by means of a thermometer with low inertia fitted in an airplane.
Diagrams of air temperature, load of the airplane, velocity of flight, and deviation from the height assumed, are attached.

Card 1/3

PA - 2240

A Method of Studying downward Compensation Air Currents about Developing Cumuli.

In direct proximity to the clouds and between them relatively small and distinctly marked warm currents may be observed. These currents have among others, the following characteristic properties:

- 1) The compensation currents are immediately beside the clouds and form relatively small currents (of approximately the same size as the cloud) which are distinguished sufficiently well from the surrounding cloudless space.
 - 2) The stresses on the airplane caused by the cutting through of the downward currents as a rule are smaller than stresses in the clouds, but considerably greater than the loads during flight in cloudless space at height of the clouds.
 - 3) The compensation currents always occur near the upper part of the clouds. The vertical expansion of these currents is small in the neighborhood of big cumuli compared to that of the cloud. With increasing distance from the peak of the cloud the number of observed downward currents decreases considerably.
 - 4) The surface of downward currents near developing clouds is on the average of the same order of magnitude as the surface of the cloud.
- (1 illustration)

L 13966-65 ENT(1)/ACC GW

ACCESSION NR: AP4048039

8/0020/64/158/006/1320/1323

AUTHOR: Vul'fson, N. I.; Levin, L. M.

TITLE: Descending convective currents

SOURCE: AN SSSR. Doklady*, v. 153, no. 6, 1964, 1321-1323

TOPIC TAGS: atmospheric circulation, air current, temperature gradient

ABSTRACT: The paper deals with the differences between the laws of temperature change and the rate of flow in unstable layers of air for ascending and descending currents. An unstable layer is considered, for which the vertical temperature gradient γ is larger than the dry or wet adiabatic coefficient γ_* , depending on whether a cloudless or cloudy layer is involved. In such a layer, the stationary flow along the axis of symmetry can be derived from the equation (in cylindrical coordinates):

$$\begin{aligned} u \frac{\partial \omega}{\partial r} + \omega \frac{\partial u}{\partial r} &= \beta g \theta + \frac{1}{r} \frac{\partial}{\partial r} \left(K_{1r} \frac{\partial \omega}{\partial r} \right), \\ u \frac{\partial \theta}{\partial r} + \omega \frac{\partial \theta}{\partial z} &= (\gamma - \gamma_*) \omega + \frac{1}{r} \frac{\partial}{\partial r} \left(K_{1r} r \frac{\partial \theta}{\partial r} \right), \\ \frac{\partial}{\partial r} (ur) + \frac{\partial}{\partial z} (\omega z) &= 0 \end{aligned} \quad (1)$$

Card 1/3

ACCESSION NR: AP4048039

with the boundary conditions

$$u = \frac{\partial w}{\partial r} = \frac{\partial \theta}{\partial r} = 0 \text{ for } r = 0;$$

(2)

$$w = 0 = K_1 r \frac{\partial w}{\partial r} = K_2 r \frac{\partial \theta}{\partial r} = 0$$

and w bounded for $r = R(z)$. Here, u and w are the radial and vertical components of speed; θ the excess of temperature in the flow; g the acceleration due to gravity; β the temperature coefficient of density; K_1 and K_2 the coefficients of turbulent friction and turbulent heat exchange; and R the radius of the flow. The authors then show how to approximate the solution to these equations. The theoretical model derived is seen to agree well with observed circumstances. It is also observed that in descending currents in thunderclouds, the intensity and change in temperature increase near the base of the cloud due to the circulation of the air, and that the speed and temperature of descending currents near the base of a cloud are actually greater than those of the ascending currents. Orig. art. has: 1 figure and 16 formulas.

Card 2/3

L 13966-65

ACCESSION NR: AP4048039

ASSOCIATION: Institut prikladnoy geofiziki (Institute of Applied Geophysics)

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Card 3/3

AUTHOR: Vulfson, N.I. SOV/49-58-7-6/16

TITLE: Statistical Methods of Determination of Effective Parameters of the Observed Convective Currents (Statisticheskiye metody opredeleniya deystvitel'nykh parametrov konvektivnykh potokov po nablyudayemym)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya Geofizicheskaya, 1958, nr 7, pp 876 - 890 (USSR)

ABSTRACT: 1) One of the methods of determining the convective motion in the atmosphere is a calculation based on the temperature measured from an aircraft. An application of this method helped considerably in studying the characteristics of convection and the formation of clouds. However, there is still a need of an improved method in order to establish the distribution of the effective currents and their temperatures. This work is an attempt to apply a statistical method for this kind of investigation. The method could also be used in other fields, such as geophysics, biology, astronomy or geology.

2) Two main kinds of convection are investigated: when it is produced by the air lifted from the Earth surface ("stream") or when an isolated mass of air ("air bubble") Card1/11 is ascending.

SOV/49-58-7-6/16

Statistical Methods of Determination of Effective Parameters of
the Observed Convective Currents

a) It is assumed that the air in the upward motion represents a series of homogeneous cylinders. It is possible to construct a function describing the distribution of their number and the concentration of centres n_1 . The probability density of the circles having diameter S is denoted by $F_1(s)$, forming an Eq.(1). A number of the circles having diameters from s to $s + ds$ per unit of a straight line intersecting these circles is denoted by Eqs.(2) or (4). The total number of circles (of all diameters) is (3), where \bar{s} is the first moment or a mean diameter. The relationship (5) is obtained by equalising Eqs.(4) to (2). The probability of obtaining the chords having dimensions from l to $l + dl$ can be expressed by Eq.(6). The conditional probability is equal to Eq.(7). By substituting Eqs.(7) and (5) into (6), an integral equation (8) is formed which gives a distribution of equal circles and chords. The Eq.(8) can be transformed into (9) for the limiting case $R \rightarrow \infty$.

Card2/11